

cancer care and management From the point of view of radiotherapy all of the above are relevant and pertinent. The changing epidemiology, treatment patterns and improved survival rates all raise the importance of comprehensive approaches. Radiotherapy has not seen appropriate attention in terms of economic evaluation since a lot of attention lies with the medical, i.e. pharmacological treatment. Contrary to the analyses on the innovative therapies and new lines of cancer drugs, radiotherapy does not attract that many health technology assessments. There are at least the following reasons why it should: The greater and rising use of radiotherapy treatments in cancer care. The high cost of initial investment and maintenance - the latter being equally important as the former. The need for more flexibility in its availability and use. The inherent multi- and interdisciplinary nature needed to successfully carry out the radiotherapeutic care. For policy makers often the immediate needs and problems are more relevant than rather remote projections. Nevertheless, the need to plan is even more pertinent to the investments needed for radiotherapy than for other types of care. This makes it benefit better from the planning process but also raises the need to better balance the different therapeutic elements in cancer care when adopting and changing guidelines and patient pathways. Consequently, plans may better reflect the future need for investment and for the planning and development of human resources. In that sense and through its dependence on technology, radiotherapy should be even more interested in supporting and contributing to the idea of the national cancer plans. There have been recent challenges for many countries lately. Austerity measures have cut into health care budgets similarly as into other public expenditures. Careful epidemiological analyses that can evaluate the contribution of the different elements of care to patient survival and quality of life are extremely important and may very often offset the costs of complex treatments. Radiotherapy is a vital element of comprehensive cancer care. Given its needs for careful planning, equipment purchases and development of human resources in combination with a rising need for radiotherapy, there is a definite need for clear identification of radiotherapy in national cancer plans. Only through such transparency it is possible to secure all the conditions for further development of cancer radiotherapy.

Debate: Maximising tumour control: crank up the volume or turn off the switches?

SP-0335

For the motion

A Tree¹

¹The Institute of Cancer Research and the Royal Marsden NHS Foundation Trust, Academic Radiotherapy, Sutton, United Kingdom

SP-0336

Against the motion

J-J Sonke¹

¹Netherlands Cancer Institute, Radiotherapy Department, Amsterdam, The Netherlands

SP-0337

For the motion rebuttal

B. Wouters¹

¹Ontario Cancer Institute, Princess Margaret Cancer Centre, Toronto, Canada

SP-0338

Against the motion rebuttal

A. Dekker¹

¹MAASTRO Grow, School for Oncology and Developmental Biology, Maastricht, The Netherlands

Proffered Papers: Clinical 7: Urology

OC-0339

More acute proctitis symptoms with hypofractionation (3.4 Gy) than 2 Gy fractions

W. Heemsbergen¹, L. Incrocci², C. Vens³, M. Witte¹, S. Aluwini², F. Pos¹

¹Netherlands Cancer Institute, Dept of Radiation Oncology, Amsterdam, The Netherlands

²Erasmus MC Cancer Institute, Dept of Radiation Oncology, Rotterdam, The Netherlands

³Netherlands Cancer Institute, Division of Biological Stress Response, Amsterdam, The Netherlands

Purpose or Objective: Several clinical studies investigated hypofractionation schedules with fractions ≥ 3 Gy in prostate cancer. Recovery from rectal radiation damage has been reported to depend on weekly dose rates, implying that acute rectal toxicity is regarded as little fractionation sensitive. A phase 3 randomized trial, with dose delivery of ≈ 10 Gy/week in both arms, recently reported a significantly higher peak incidence of RTOG grade ≥ 2 gastrointestinal (GI) toxicity in the 3.4 Gy vs the 2 Gy fractions arm. Here, we further analyzed the acute proctitis symptoms of the two schedules with 3.4 Gy or 2 Gy fractions delivered with image-guided (IG)-IMRT, and compared it with the incidence of patients receiving 2 Gy fractions delivered with a 3D conformal technique (3DCRT).

Material and Methods: We selected patients treated with IG-IMRT (planning margins 5-8 mm) from a randomized trial for localized prostate cancer, with patients in the Hypofractionation arm (HF, n=303) receiving 3 fractions per week of 3.4 Gy with 48h intervals, during 6.5 weeks. Patients in the standard arm (SF, n=298) received 5 fractions of 2 Gy per week with 24h intervals, for 8 weeks. A third historical group (3DCRT) contained patients from a previous trial (n=522) treated with 2 Gy/fraction (7-8 weeks), planning margins of 10 mm, and a three-field 3D-conformal technique. Prospectively collected patient-reported symptoms were available for week 4 and week 6. Peak incidences (maximum week 4 & 6) were compared between the groups (chisquare test).

Results: We found a significantly increased risk for acute rectal bleeding in the HF group (15.1% versus 7.6% for SF, Table 1, Figure 1), which implies a relative risk of 2.0. Increased risks for HF vs SF ($p < 0.05$) were also found for mucus loss, loose stools, and increased stool frequency. Figure 1 shows the incidences for bleeding and mucus loss (with 1 SE). The increased risks for bleeding in the HF schedule were comparable with the observed risks in the historical 3DCRT cohort. Risks for other toxicities with HF were somewhat lower than for 3DCRT, with no significant differences except for stools ≥ 4 (HF 34.7% vs 3DCRT 42.9%, $p = 0.02$). Incidence of diarrhea exceeded that of the 3DCRT schedule, but not significantly ($p = 0.1$).

Conclusion: We observed significantly more acute proctitis symptoms in the HF group. These data might point to an underestimated fractionation sensitivity of acute rectal tissue. Our findings suggest that the repair capacity between two fractions was less effective when 3.4 Gy was delivered every other day, compared to daily 2 Gy fractions. The increased damage by hypofractionation is in the same order as the reduction in damage previously achieved with the introduction of IG-IMRT.